

REMARKS

Claims 1-63 are pending in the present application and claims 13-16, 23-28 and 43-63 have been withdrawn from consideration.

Claims 1, 29, 38, 43, 45, 46 and 47 are the independent claims.

Claims 1 and 9-12 have been amended. No new matter is believed to have been added.

Applicants acknowledge with appreciation the indication that claims 21, 22, 36 and 37 recite patentable subject matter and would be allowable if rewritten in independent form to include all of the features of the base claim and any intervening claims.

REJECTIONS UNDER 35 U.S.C. §112:

Claims 9-12 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9-12 have been amended in accordance with the Examiner's comments. Accordingly, Applicants assert that claims 9-12 as amended fully comply with the requirement of 35 U.S.C. §112, second paragraph and thus, respectfully request that the rejection of claims 9-12 be withdrawn.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1-12, 38-42 are rejected under 35 U.S.C. §102(e) as being anticipated by Sato et al. (U.S. Patent Application 2004/0146786, hereafter Sato).

Applicants respectfully traverse this rejection for at least the following reasons.

Sato has a PCT filing date of April 19, 2002, however since the PCT application was filed in Japanese, this filing date may not be relied for a 102(e) date.

The PCT application was published on November 21, 2002 with an English abstract and therefore, November 21, 2002 is the earliest date this reference may be relied for a 102(e) date.

The present application claims priority to September 26, 2002. Accordingly, Sato has a

publication date which is after the priority date of the present application.

Therefore, Applicants hereby enclose a Declaration under Rule 131(a) signed by the inventor, claiming priority to September 26, 2002 along with a verified English translation of the application claiming priority to September 26, 2002.

Accordingly, Applicants respectfully assert that the rejection of claims 1-12 and 38-42 under 35 U.S.C. § 102(e) should be withdrawn because Sato does not qualify as prior art under 35 U.S.C. § 102(e).

Claims 1-4, 7, 8, 38, 40-42 are rejected under 35 U.S.C. §102(b) as being anticipated by Arai et al. (JP 10-180943, abstract, hereafter JP '943).

Applicants respectfully traverse this rejection for at least the following reasons.

Regarding the rejection of independent claim 1, it is noted that claim 1 recites an electrolyte of a lithium secondary battery comprising: lithium salts; a first organic solvent; and a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂).

JP '943 discloses a negative electrode of graphitic carbon material capable of storing and releasing lithium, and a positive electrode of lithium transition metal composite oxide such as LiCoO₂ and a non-aqueous electrolyte formed of an electrolyte such as LiPF₆ dissolved in a non-aqueous solvent. The non-aqueous solvent is composed of 5wt% to 40wt% of the chain carbonate mixed with the mono-halogenated or di-halogenated cyclic carbonate. Further, examples of JP '943 use 25 to 100wt% of mono-halogenated cyclic carbonate (CELC 1). Accordingly, JP '943 discloses a non-aqueous solvent composed of a chain carbonate mixed with mono-halogenated or di-halogenated cyclic carbonate, and not a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂).

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. § 102(b) should be withdrawn because JP '943 fails to teach or suggest each feature of independent claim 1.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 2-4, 7 and 8 under 35 U.S.C. §102(b) should be withdrawn at least because of their dependence from

claim 1 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 2-4, 7 and 8 also distinguish over the prior art.

Regarding the rejection of independent claim 38, it is noted that claim 38 recites a lithium secondary battery comprising: a positive electrode including a material that reversibly intercalates/deintercalates lithium ions, or a material that reversibly forms a lithium-containing compound as a positive active material; a negative electrode including a lithium metal, a lithium-containing alloy, or a material that reversibly intercalates/deintercalates lithium ions; and an electrolyte comprising: lithium salts; an organic solvent with a high boiling point; and a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂).

As noted above, JP '943 discloses a non-aqueous solvent composed of a chain carbonate mixed with mono-halogenated or di-halogenated cyclic carbonate, and not a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂), as recited in independent claim 38.

Accordingly, Applicants respectfully assert that the rejection of claim 38 under 35 U.S.C. § 102(b) should be withdrawn because JP '943 fails to teach or suggest each feature of independent claim 38.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 40-42 under 35 U.S.C. §102(b) should be withdrawn at least because of their dependence from claim 38 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 40-42 also distinguish over the prior art.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1-4, 7-12, 17-20, 29-30, 32-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Xu et al. (U.S. Patent 6,743,947 hereafter Xu) in view of Arai et al. (6,495,293 hereafter Arai).

Regarding the rejection of independent claim 1, it is noted that claim 1 recites an electrolyte of a lithium secondary battery comprising: lithium salts; a first organic solvent; and a

carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂).

Xu discloses the formulation of a non-aqueous electrochemically stable electrolyte solution comprising onium salts and a solvent or solvent mixture (column 1, lines 25-28). Xu further discloses that these solvents include the CN or SO₂ group. Contrary to Xu, independent claim 1 recites a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂).

Therefore, Xu fails to teach or suggest the novel features recited in independent claim 1.

Arai discloses an organic electrolyte and polymer wherein diffusivity of mobile ions is enhanced; and a lithium primary battery, lithium secondary battery, polymer secondary battery, and electrochemical capacitor, is provided having increased capacities at a low temperature. Accordingly, Arai fails to cure the deficiencies of Xu.

Regarding the rejection of independent claim 29, it is noted that claim 29 recites a carbonate-based additive compound having substituents selected from the group consisting of a halogen, a cyano (CN), and a nitro (NO₂), and an organic sulfone-based compound of form.

As noted above, neither Arai nor Xu, whether taken singly or combined, teach or suggest the carbonate-based additive compounds recited in independent claim 29.

Accordingly, Applicants respectfully assert that the rejection of claims 1 and 29 under 35 U.S.C. § 103(a) should be withdrawn because neither Xu nor Arai, whether taken singly or combined, teach or suggest each feature of independent claims 1 and 29.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 2-4, 7-12, 17-20, 30 and 32-35 under 35 U.S.C. §103(a) should be withdrawn at least because of their dependence from claims 1 and 29 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 2-4, 7-12, 17-20, 30 and 32-35 also distinguish over the prior art.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the

application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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